CLAIMS:

1. A process for preparing a cycloolefin addition polymer, comprising addition-polymerizing monomers containing a cycloolefin compound represented by the following formula (1) in the presence of:

a multicomponent catalyst comprising:

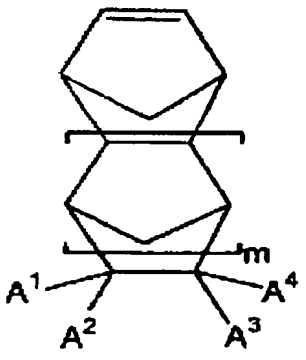
(a) a palladium compound,

(b) a compound selected from an ionic boron compound, an ionic aluminum compound, a Lewis acidic aluminum compound and a Lewis acidic boron compound, and

(c) a phosphine compound having a substituent selected from an alkyl group, a cycloalkyl group, and an aryl group of 3 to 15 carbon atoms, and having a cone angle (θ deg) of 170 to 200, or its phosphonium salt, and

ethylene;

[Chemical Formula 1]



... (1)

wherein A^1 to A^4 are each independently a hydrogen atom, an alkyl group, a cycloalkyl group, an aryl group, an ester group, an alkoxy group or a trialkylsilyl group of 1 to 15 carbon atoms, or a hydroxyl group, and may be each bonded to a ring structure through an alkylene group of 1 to 20 carbon atoms or a linkage of 0 to 10 carbon atoms containing at least one atom selected from an oxygen atom, a nitrogen atom and a sulfur atom, A^1 and A^2 may together form an alkylidene group of 1 to 5 carbon atoms, a substituted or unsubstituted alicyclic or aromatic ring of 5 to 20 carbon atoms or a heterocyclic ring of 2 to 20 carbon atoms, A^1 and A^3 may together form a substituted or unsubstituted alicyclic or aromatic ring of 5 to 20 carbon atoms or a heterocyclic ring of 2 to 20 carbon atoms, and m is 0 or 1.

2. The process for preparing a cycloolefin addition polymer as claimed in claim 1, wherein the multicomponent catalyst comprises:

(a) a palladium compound,

(b) a compound selected from an ionic boron compound, an ionic aluminum compound, a Lewis acidic aluminum compound and a Lewis acidic boron compound,

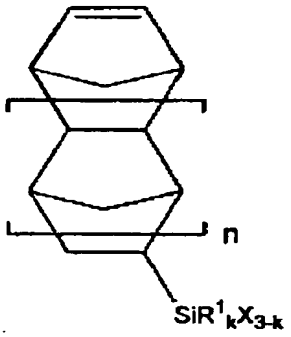
(c) a phosphine compound having a substituent selected from an alkyl group, a cycloalkyl group and an aryl group of 3 to 15 carbon atoms, and having a cone angle (θ deg) of 170 to 200, or its phosphonium salt,

and additionally

(d) an organoaluminum compound.

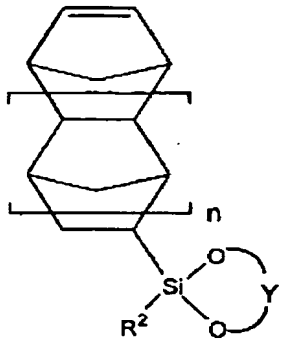
3. The process for preparing a cycloolefin addition polymer as claimed in claim 1 or 2, wherein monomers containing 70 to 98% by mol of the cycloolefin compound represented by the formula (1) and 2 to 30% by mol of a cycloolefin compound having an alkoxysilyl group and represented by the following formula (2)-1 and/or the following formula (2)-2 are addition-polymerized;

[Chemical Formula 2]



... (2) −1

[Chemical Formula 3]



... (2) −2

wherein R^1 and R^2 are each a substituent selected from an alkyl group, a cycloalkyl group, an aryl group of 1 to 10 carbon atoms, and a halogen atom,

X is an alkoxy group of 1 to 5 carbon atoms,

Y is a residue of a hydroxyl group of an aliphatic diol of 2 to 4 carbon atoms,

k is an integer of 0 to 2, and

n is 0 or 1.

4. The process for preparing a cycloolefin addition polymer as claimed in any one of claims 1 to 3, wherein the palladium compound (a) is an organic carboxylic acid salt of palladium or a β-diketone compound of palladium.

5. The process for preparing a cycloolefin addition polymer as claimed in any one of claims 1 to 4,

wherein the amount of ethylene used in the addition polymerization is in the range of 0.1 to 5.0% by mol based on all the monomers.

6. The process for preparing a cycloolefin addition polymer as claimed in any one of claims 1 to 5, wherein monomers containing bicyclo[2.2.1]hept-2-ene in an amount of not less than 80% by mol in all the monomers are addition-polymerized in the presence of a polymerization solvent containing an alicyclic hydrocarbon solvent in an amount of at least 50% by weight.